

CLAIMS

1. A particle comprising:
 - (a) a protein envelope with a fusion protein comprising a virus protein, a cell permeability-mediating peptide and a heterologous cell-specific binding site; and
 - 5 (b) nucleic acid sequences present in the protein envelope, comprising a sequence encoding a virus-specific packaging signal and a sequence encoding a structural gene.
2. The particle according to claim 1, wherein the virus protein is derived from an adenovirus, adeno-associated virus, vaccinia virus, baculovirus or hepadnavirus.
3. The particle according to claim 2, wherein the hepadnavirus is a hepatitis B virus.
- 10 4. The particle according to any of claims 1-3, wherein the virus protein is a surface protein.
5. The particle according to claim 4, wherein the surface protein is an LHBs.
6. The particle according to any of claims 1-3, wherein the virus protein is a core protein.
7. The particle according to claim 6, wherein the core protein is an HBcAg.
8. The particle according to any of claims 1-7 wherein the cell permeability-mediating peptide comprises the following amino acid sequence: P L S S I F S R I G D (SEQ ID NO:20)
- 15 9. The particle according to any of claims 1-8, wherein the heterologous cell-specific binding site is RGD.
10. The particle according to any of claims 1-9, wherein the fusion protein is that in Fig. 1 (SEQ ID NO___) or 2 (SEQ ID NO:___).
- 20 11. A method for the preparation of the particle according to claim 1, wherein the fusion protein contains an LHBs and a heterologous cell-specific binding site, comprising the following method steps:

(a) cotransfection of cells which code for a hepatitis B virus genome, wherein these cells do not express LHBs, with a first expression vector coding for a fusion protein which comprises an LHBs and a heterologous cell-specific binding site, and with a second expression vector comprising a virus-specific packaging signal and a structural gene; and

(b) isolation and purification of the particle.

12. A method for the preparation of the particle according to claim 1, wherein the fusion protein comprises an HBcAg, a cell permeability-mediating peptide and a heterologous cell-specific binding site, comprising the following method steps:

(a) cotransfection of cells coding for an HBV polymerase with a first expression vector coding for a fusion protein which comprises an HBcAg, a cell permeability-mediating peptide and a heterologous cell-specific binding site, and with a second expression vector comprising a virus-specific packaging signal and a structural gene, and

(b) isolation and purification of the particle.

13. A fusion protein, comprising a virus protein, a cell permeability-mediating peptide and a heterologous cell-specific binding site.

14. The fusion protein according to claim 13, comprising the amino acid sequence of Fig. 1 or 2 or an amino acid sequence differing therefrom by one or more amino acids.

15. A DNA which codes for the fusion protein according to claim 13.

16. A DNA which codes for the fusion protein according to claim 14, including,

(a) the DNA from Fig. 1 (SEQ ID NO:____) or 2 (SEQ ID NO:____) or a DNA differing therefrom in one or more base pairs; or

(b) A DNA which is related to the DNA of (a) by virtue of the degenerate genetic code.

17. An expression vector which codes for the DNA according to claim 16.